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# NSLDS II Web Reporting Tutorial

DRAFT

Version 1.0

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## Document Control

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1.0	Initial Issue	09/30/2002	Allison Webster

## **1 Introduction**

MicroStrategy 7i will be used by NSLDS II as a data access tool for reporting. This guide introduces the MicroStrategy 7i Web environment and provides an overview of the functionality available. This guide is not designed to be a comprehensive end-user training guide for MicroStrategy. Rather, its purpose is to cover the important aspects for creating and running reports so that Department of Education personnel will have a high level understanding of how the tool may be used. It is also important to note that all screenshots are for illustrative purposes and do not represent the official NSLDS II reporting tool, although the final tool should resemble in concept the included screenshots.

The objectives of this guide are as follows:

- Introduce MicroStrategy and key elements such as attributes, facts, metrics, etc.
- Describe how to access and run a canned report.
- Outline the steps needed to construct and run an ad-hoc report.
- Introduce how to use filters and prompts in reports.
- Describe data manipulation options such as drilling techniques, sorting, and page by functions.

## **2 Overview of MicroStrategy Web**

The MicroStrategy Web interface allows users to run stored reports, as well as create new reports. This interface, which is accessible through a web browser, supports functionality such as ad hoc querying, report generation, online report viewing, formatting, and further data analysis through drilling. The HTML/DHTML interfaces deliver this functionality without using any Active X or Java downloads.

Analysis of NSLDS II data will occur within the framework of a NSLDS II project in MicroStrategy. A project could be described as the intersection of a data mart, a metadata repository, and a user community. In the NSLDS II instance, the project represents the place where Department of Education personnel will access data from the NSLDS II Data Mart using objects stored in the NSLDS II metadata repository. The metadata repository stores definitions and information about the NSLDS II Data Mart, including its logical structure, in what is known as schema objects.

### **2.1 Key Schema Objects**

For reporting in MicroStrategy, it is important to understand the following concepts:

- Attributes
- Facts
- Metrics

## **Attributes**

Attributes are non-numeric, non-aggregatable data that is stored inside the NSLDS II metadata repository. They allow the user to answer questions about a fact and provide context for reporting those facts. Some examples of attributes in NSLDS II would be Student Name, School Code or Loan Number. The data returned in the report data set are known as attribute elements. For example, Student SSN is the attribute name while '111-11-1111' would be the attribute element.

## **Facts**

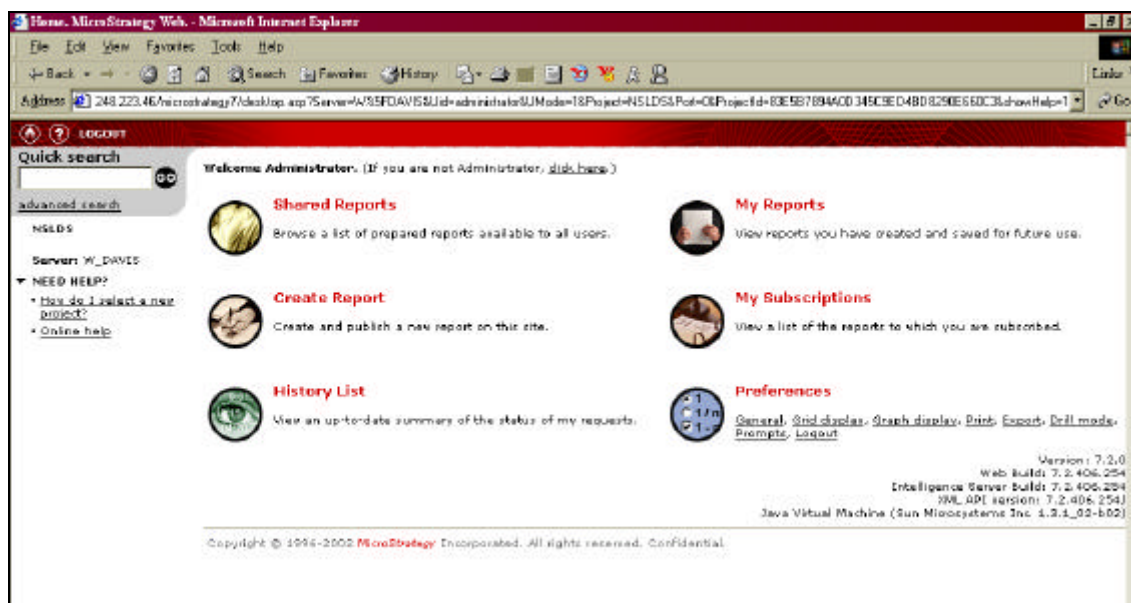
Facts are numeric and aggregatable fields. They relate numeric data values from the data mart to the MicroStrategy reporting environment. Facts form the basis for the majority of analyses and reports for ED users. Some examples of facts that are stored in NSLDS II include loan balances, loan interest amounts, GA collection amounts, as well as submittal dates.

## **Metrics**

Metrics are defined as analytical calculations performed against stored data to produce results for decision-making purposes. Metrics are based on facts, and are often a part of calculations. A simple example of a metric in NSLDS II would be the summation of student loan balances per school or state, or a simple count of a dollar amount.

## 2.2 NSLDS II Project Home Page

Once the user is logged into the NSLDS II project, users are presented with several navigation options. The table below describes the purpose of each option.



**Figure 1, NSLDS II Project Home Page**

Option	Purpose
Shared Reports	Allows user to browse a list of prepared reports available to execute. <u>Note:</u> Depending on the security privileges assigned, each user may have access to different reports.
My Reports	Allows user to view reports they have created and saved for future use.
Create Report	Allows user to create a new report.
My Subscriptions	Allows user to view a list of reports to which the user has subscribed. <u>Note:</u> Within the NSLDS II project, users could have the ability to subscribe to receive reports at specific, scheduled times.
History List	Allows user to view an up-to-date status summary of report requests.
Preferences	Allows user to select preferences such as report display, exporting, printing, etc.

Other main aspects of the MicroStrategy reporting tool, such as toolbars and navigation features, are incorporated throughout the remainder of this document.

### 3 MicroStrategy Pre-Defined Reports

Using the NSLDS II project, users will have the ability to access and run prepared reports. Depending on whether the report is a shared report or a personal report, the user would click on either the “My Reports” or the “Shared Reports” icon. In the example that follows, the user will execute a shared report called Student Date of Birth.

#### 3.1 Running a Prepared Report

To run a report that has already been created, the following steps must be executed:

##### Step 1: Select Report Location

In this example, click on the **Shared Reports** icon.

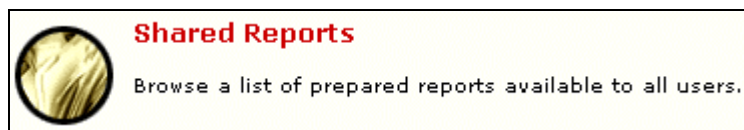


Figure 2, Shared Reports Icon

The **Shared Reports** folder will open and display the available reports.

Note: It is possible to group reports into folders within Shared Reports, but for the purpose of this example, all of the available reports are displayed without using sub-folders.

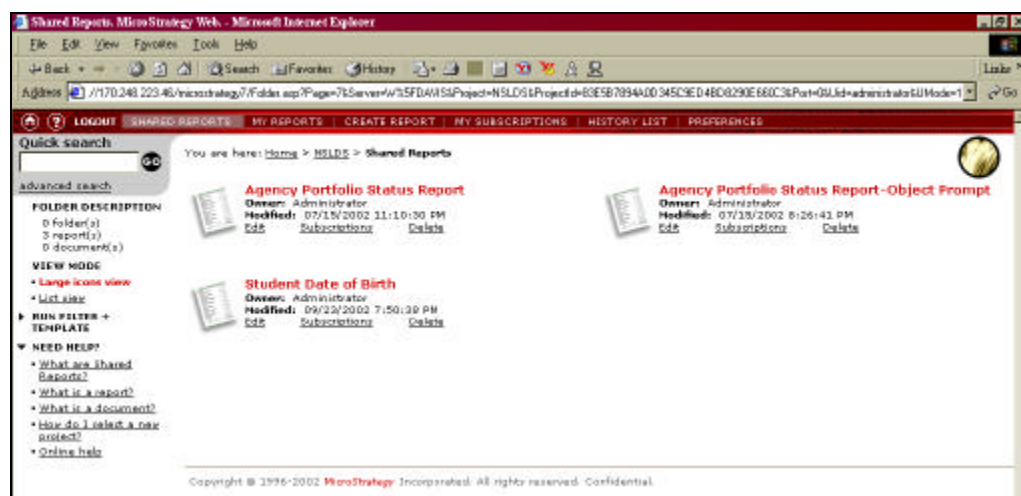


Figure 3, Contents of Shared Reports Folder

## Step 2: Select and Execute Report

Click on the **Student Date of Birth** report icon.

The report will begin execution and the wait page will appear.

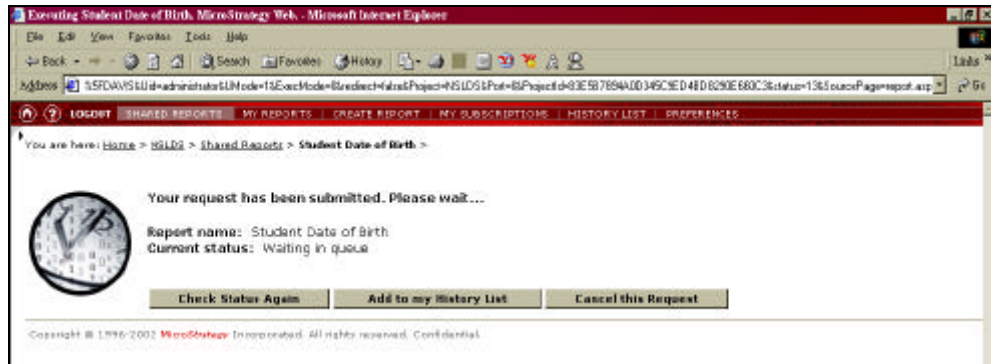


Figure 4, Wait Page

**Note:** If the user were required to enter parameters for the report, the prompting questions would appear before the report is executed. See Section 4.4: Running Reports with Prompts to see an overview of this process.

Once the report is finished executing, the Student Date of Birth report appears.

Student Date of Birth, MicroStrategy Web - MicroStrategy Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites History

Address: A48 view=6x85 server=iv72FD4M5RSLD-administrator/LUNode=13EviewMode=05 nodeid=45label=Pageid=8SLD&Page=0&status=136P1opid=83E787594ADD34DC9ED4ED6C9966DC37

LOGOUT SHARED REPORTS MY REPORTS CREATE REPORT MY SUBSCRIPTIONS HISTORY LIST PREFERENCES

You are here: Home > RSLDS > Shared Reports >

Student Date of Birth

Report View Data Format

PAGE BY: none

Last update: 05/23/2002 3:53:03 PM

1 2 3 4 5 of 5 page(s) >> Autostyle: Red and Black

Row: 1 - 50 of 226 Column: 0








Student	Student DOB
JEROME	LYLES 01/08/1977
JOAN	DOUGHTIE 12/29/1949
JIMMIE	PARKER 04/04/1958
BETTE	ONEILL 06/02/1948
MARY	FRIZZELL 08/06/1943
DORIS	BELL 11/25/1940
WILLIAM	SMITH 05/10/1946
DOMENICK	MIANO 01/24/1952
RODERICK	MCCOWN 10/01/1960
CURTIS	JOHNSON 05/14/1950
ELAINE	ALBEE 01/08/1977
EDWARD	MARTINEZ 03/28/1950
DEBRA	WHITE 12/14/1961
KENNETH	WYSONG 09/04/1950
EDGAR	HUGHES 01/18/1977
GLORIA	ANTHONY 10/08/1980
GENE	WILSON 10/02/1946
CLARA	ROBERTS 01/08/1977
TOMMIE	DOUGLAS 07/19/1945
CHARLES	DURDEN 01/08/1977
ALBERT	FOSTER 09/11/1945
SHIRLEY	INGRAM 10/04/1944
CARL	MOORE 11/08/1977
LYNN	MOORE 01/08/1974
JOYCE	HASLERIG 01/08/1977
KATHERINE	NEWTON 01/08/1977
CHARLES	PERKINS 01/08/1977
CHARLES	PITTMAN 01/08/1977

Figure 5, Student Date of Birth Report

## 3.2 Reporting Toolbar

Once the data set has appeared, a reporting toolbar becomes accessible to the user. The user can use this toolbar to perform a variety of tasks, which are described in the chart below.

**Report Toolbar: Buttons and Descriptions**

Name	Button	Description
<b>Design Mode</b>		Allows the user to create or modify a report by adding or editing the attributes, metrics, prompts, and filters on the design grid.
<b>Grid</b>		Displays the report in column and row grid format.
<b>Graph</b>		Displays the report in graph mode.
<b>Grid and Graph</b>		Displays the report in both graph and grid mode.
<b>Print</b>		Allows the user print the report.
<b>Refresh Data</b>		Re-executes the report and overrides any existing cache.
<b>Save</b>		Allows the user to save the report.

The user also has the ability to perform data manipulations, such as sorting, rearranging the data columns, etc., once the report result set is formed. See Section 4.5: Manipulating Reports for more detail on these options.



## 4 MicroStrategy Ad-hoc Reports

The MicroStrategy Web tool also allows users to create and execute ad-hoc reports. This section outlines the necessary steps for creating an ad-hoc report.

### 4.1 Creating a Basic Report

To create a new report, the following steps must be executed:

#### Step 1: Select Create Report

Click on the **Create Report** icon.



Figure 6, Create Report Icon

The **Create Report** screen will appear.

This screen allows the user to either select create a new report, or to select from an option of report builders and wizards. The report builders and wizards are methods to guide the user through the report creation process if they do not want to start building a report from an empty template. For this demonstration, however, the user will create a report using an empty template.

#### Step 2: Select Method to Create Report

Select the **Create a Report** option button. Then, click the **Next** button directly to the right.

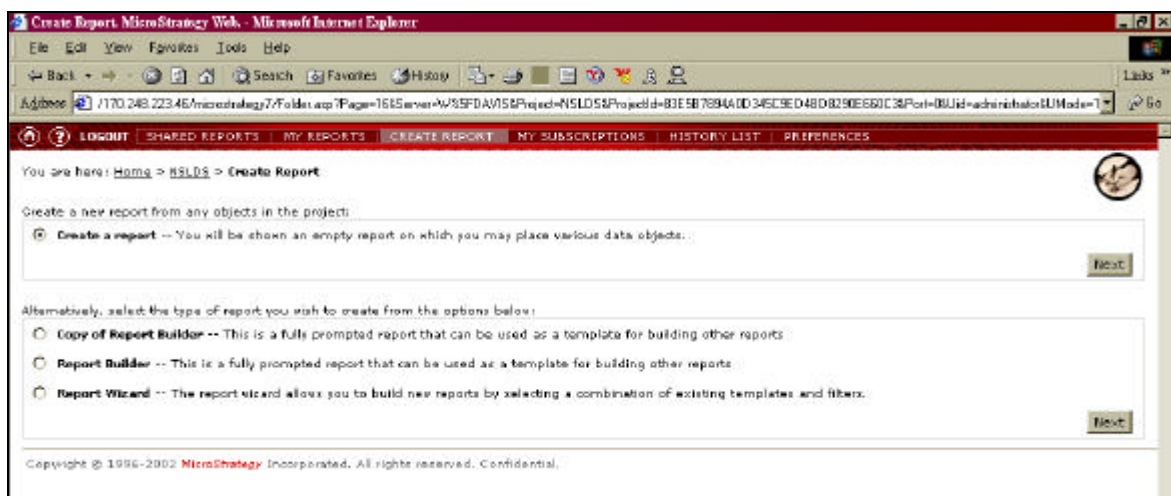
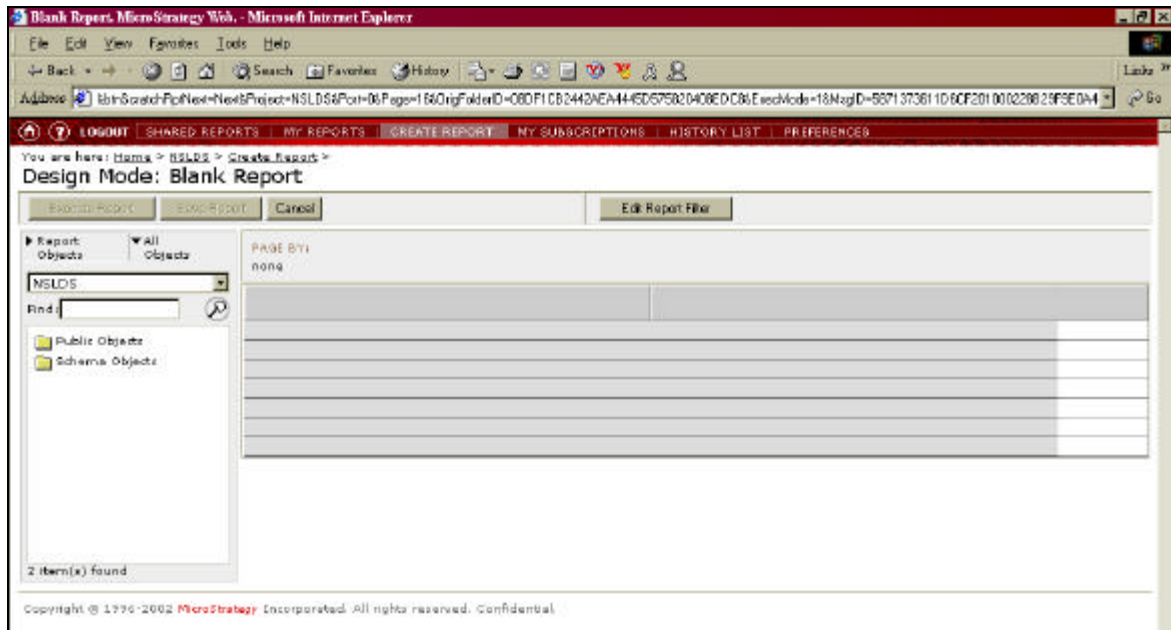


Figure 7, Create Report Screen

The design mode screen will appear.

The design mode allows users to build a report by placing attributes and metrics on the report layout. From design mode, users can browse for the appropriate schema object using the **All Objects** tab.



**Figure 8, Design Mode**

For this example, a report displaying the names of lenders that have issued loans will be created. In addition, for every lender, the student names and their outstanding principal amounts on their loans will be listed. Thus, this report will contain two attributes (lender, student) and one metric (outstanding loan principal balance). The selected attributes and metrics for the report correlate to a SELECT statement using SQL.

### **Step 3: Search Attribute List**

From the **All Objects** tab on the left side of the design screen, click the **Schema Objects** folder, and then the **Attributes** folder.

Every attribute available in the NSLDS II project will be listed.



Figure 9, Available Attributes

Note: It is possible to group attributes and allow the user to search for an attribute, thus minimizing the amount of scrolling the user must perform to locate the correct attribute.

#### Step 4: Place Attributes on Report

For this example, click on the **Lender** attribute link.

**Lender** will appear in the report grid column header.

Next, click on the **Student** attribute link.

The **Student** column header will appear to the right of the **Lender** column header.

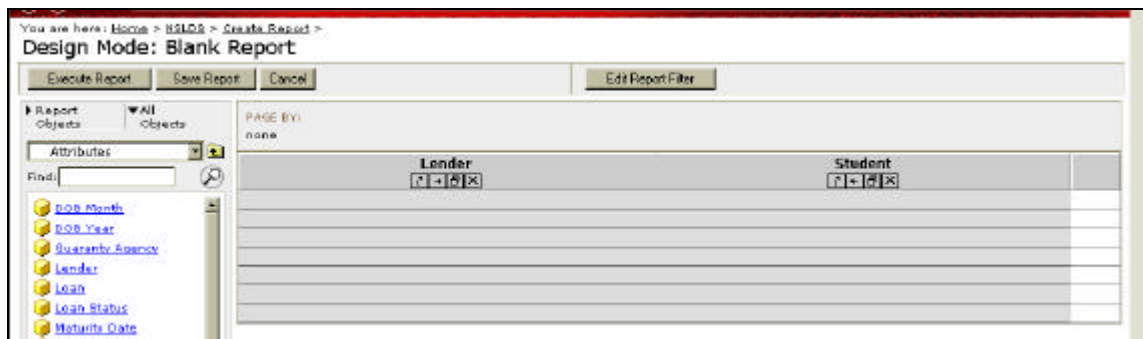



Figure 10, Placing Attributes on the Report Grid

Note: Users can place attributes on reports in three ways, either by clicking on the attribute link, right clicking on the attribute link and selecting Add to Grid, or dragging the attribute onto the report grid.

### Step 5: Search Metric List

The process for placing a metric onto a report is essentially the same as that for an attribute.

After navigating back to the NSLDS II project root directory within the **All Objects** tab using the Up Directory icon  or using the directory dropdown box, click on the **Metrics** folder.

The available metrics that can be used when creating reports will appear.

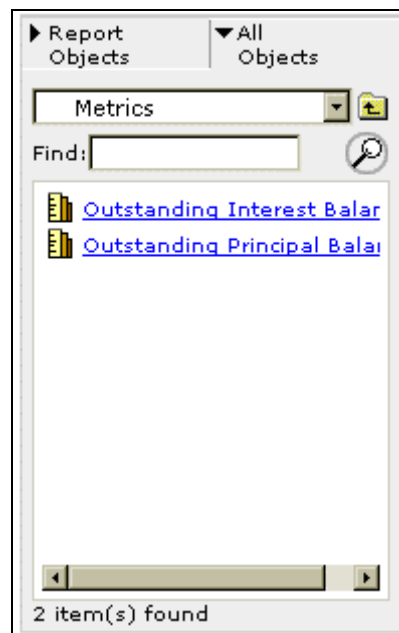


Figure 11, Available Metrics

### Step 6: Place Metrics on Report

For this example, click on the **Outstanding Principal Balance** link.

**Outstanding Principal Balance** will appear in the report grid column header.

At this point all attributes and metrics have been placed on the report grid. The report is ready for execution.

### Step 7: Execute Report

Once the attributes and metrics have been selected and placed on the report, click on the **Execute Report** button on the left side of the browser window.

Either the wait screen or the **Processing Request** box will appear, depending on the estimated report execution time.



Figure 12, Processing Request

As soon as the report is executed, the report result set will appear online. The report displays data corresponding to the selected attributes and metrics. In the example below, **Lender**, **Student**, and **Outstanding Interest Balance** are displayed.

The screenshot shows a web browser window with the title "Blank Report, MicroStrategy Web - Microsoft Internet Explorer". The address bar shows a URL starting with "C36Port=0SL6...". The page has a navigation bar with links like "LOGOUT", "SHARED REPORTS", "MY REPORTS", "CREATE REPORT", "MY SUBSCRIPTIONS", "HISTORY LIST", and "PREFERENCES". Below the navigation bar is a "Blank Report" section with a toolbar for report manipulation (Row Axis, View, Data, Format, Subtotal Names, Select Font, Size, Bold, Italic, Underline, Text Color, Background Color, etc.). The main content area displays a table with 17 rows and 4 columns: Lender, Student, Metrics, and Outstanding Interest Balance. The table lists various lenders and their associated students and interest balances. At the bottom, there is a copyright notice: "Copyright © 1996-2002 MicroStrategy Incorporated. All rights reserved. Confidential."

Lender	Student	Metrics	Outstanding Interest Balance
CITIZEN'S BANK OF RHODE ISLAND	ARTHUR TUTTLE		\$0.00
EDIC AS RECEIVER FOR AMERICAN SAVIN	ARTHUR BLODGETT		\$66.00
BALLSTON SPA NATIONAL BANK	DAWN OUELLETTE		\$3,411.00
BANCOHIO NATIONAL BANK-MEDINA CNTY	MATTHEW DREHER		\$0.00
CHEMICAL BANK C/O GERRI MADALONE	DOUGLAS METCALF		\$0.00
MISSOURI HIGHER EDUCATION LOAN AUTH	MARIAN GATELY		\$2,704.00
	TIMOTHY PRAKOP		\$17.00
SLMA/LOAN SERVICING CENTER/KANSAS	LAMPHANH SAYSIRY		\$14.00
	ALLEN MARK		\$597.00
NBD BANK, TRUSTEE FOR SMS	BEVERLY MOULTON		\$54.00
CHASE USA TRUSTEE SLMA TRUST	ALICE VIDAL		\$197.00
UNION FINANCIAL SERVICES	EVELYN BELANGER		\$0.00
SLMA/EDUCATIONAL LOAN SERVICES INC.	MARSHA WAGNER		\$0.00
	DONALD BROCKSTEDT		\$670.00
SLMA	TAMMY ALEXANDER		\$1,107.00
	DEBORAH BACA		\$0.00
	HERBERT GAUDETTE		\$0.00

Figure 13, Report Display

Note: Design Mode can still be accessed once the report has been executed, if the report needs further editing. The design mode is accessible by clicking on the **Design Mode** icon on the reporting toolbar.

## Step 8: Save the Report

Once a report is created, users have the option of saving a report either from the design mode or from the report result set.

In design mode, click on the **Save Report** button near the top of the screen. To save a report in display mode, select the **Report** dropdown, and then select **Save As**.

The **Save Report** screen will appear regardless of the selected saving option.

**SAVE REPORT**

REPORT **FILTER** TEMPLATE

Save report within: \*Shared Reports \*My Reports

My Reports

Contents of this folder:

This folder is empty.

Save report as:

Description:

☐ Embed filter and template into saved report definition.

Save Cancel

Create folder:

Description:

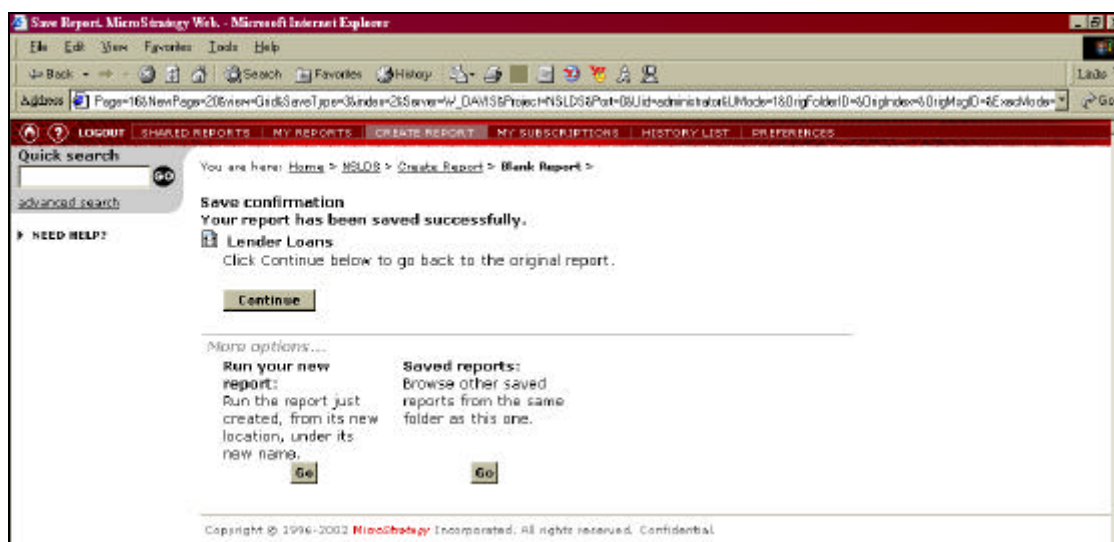
Create Folder

Figure 16, Save Report Screen

To complete the example, the user would enter the report name **Lender Loans** in the **Save report as:** text box. Then the user would click the **Save** button to save the report.

Note: Report descriptions can also be entered on the Save Report Screen as needed. In addition, the user can create new folders within the My Reports folder. Depending on security privileges, users will also have the ability to save reports to sub-folders within the Shared Reports folder.

The report will save in the **My Reports** folder and a **Save Confirmation** screen will appear.



**Figure 15, Save Confirmation Screen**

From this screen users can use the **Continue** button to navigate back to the report data set, run the report using its new name and location, or browse other saved reports.

## 4.2 Creating Filters

A filter specifies the condition that the data must meet in order to be included in the report results. A filter resembles the WHERE clause in a SQL statement. Examples of filtering criteria include returning a result set with a certain loan status, or returning a list of students whose last name begins with the letter A.

There are two types of filters in MicroStrategy: report filters and view filters. Report filters are applied before the report is executed to limit the data returned in the result set. They can only be added or modified in design mode. View filters, however, limit the data displayed on the result set once the report has been executed and a result set returned. View filters are helpful because the user can adjust the amount and type of data displayed in the result set without having to re-execute the report against the Data Mart.

### 4.2.1 Report Filter

In the following example of a report filter, a report has already been created with the following attributes: **State Resident**, **Student**, and **Student Date of Birth**. A report filter will be applied so that the report result set will only display information about students who live in Virginia, Tennessee, and Texas.

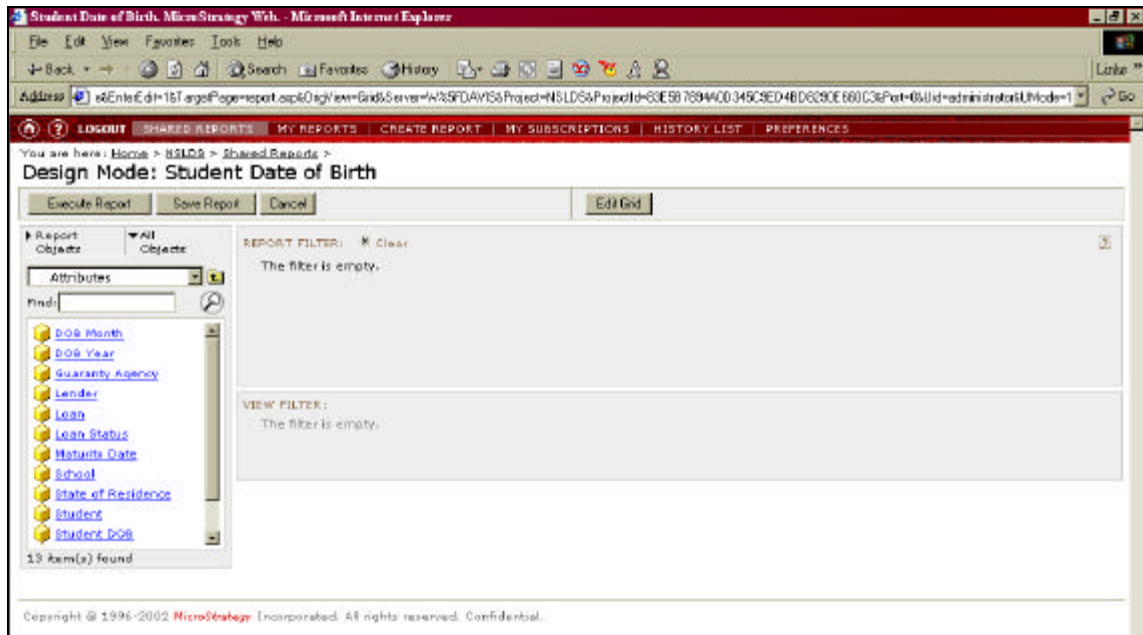
To add a report filter to a report, the following steps must be followed:



## Step 1: Select to Edit Report Filter

Once the attributes and metrics have been selected for the report in design mode, click on the **Edit Report Filter** button near the top of the screen.

An empty report filter will appear.

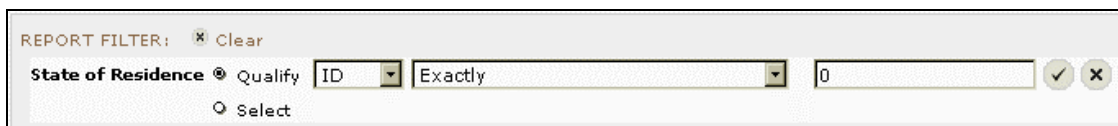


**Figure 16, Empty Report Filter**

## Step 2: Qualify on an Attribute or Metric

Select the attribute(s) and/or metric(s) that will be applied to the report. For this example, click the **State of Residence** attribute link from the **All Objects** window.

The **State of Residence** attribute will be added to the report filter.



**Figure 17, Report Filter**

The user has the option of either qualifying on or selecting an attribute. Qualifying on an attribute allows the user to filter on an attribute's ID or description using conditions such as exactly, greater than, between, less than or equal to, etc. and then entering the text or numeric value for the filter. An example of a report filter that qualifies on the State of Residence attribute is as follows: ID exactly VA. Selecting an attribute allows the user to select the filter element from a dropdown list instead of needing to know the exact text or



value to use in the filter. The figure below shows the **State of Residence** select filter. Every state is listed in the dropdown box.

**Figure 18, Select Filter**

For this example, select VA, TN, and TX as the three states by which the report result set should be limited. Then click the right arrow icon to place the three elements in the **Selected** dialog box.

Click the check icon  to indicate that the filter has been created and should be applied to the report. Next, click the **Execute Report** button to run the report.

Student Date of Birth, MicroStrategy Web, - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites History Print Mail

Address 134545+PMSProject+NSLDSPost+OLDLogID=AAZ54351106FCF110023B29F5E044State=43ProjectId=03E5B789AVID345C9E4D80C290E680C1DLogFolderId=403Index=1

LOGOUT SHARED REPORTS MY REPORTS CREATE REPORT MY SUBSCRIPTIONS HISTORY LIST PREFERENCES

You are here: Home > NSLDS > Shared Reports > Student Date of Birth

Report View Data Format

Row Axis Values Select Font Size B I U \$ % , + - \* /

PAGE BY: none

Autostyle: Red and Black

Rows: 10 Columns: 3

State of Residence	Student	Student DOB
TN	JAMES ROBINSON	01/08/1977
	GAIL SPARKS	01/08/1977
	DAVY CROCKETT	01/08/1977
	JOHN CROTTY	01/08/1977
VA	RANDY ZAGORIN	01/01/1970
	NATE BROWN	01/01/1970
	PAUL REIGEL	01/01/1970
	CLAIRE FOLBRE	01/01/1970
	ALLISON WEBSTER	01/01/1970
	GEORGE BOBB JR	08/12/1956

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**Figure 21, Report with Filter**

Once a report with filters is generated, the report result set excludes data not included in the defined filters. In this example, only the states Tennessee and Virginia are displayed since Texas did not have any students.

#### 4.2.2 View Filter

View filters can only be created after the report has been run. To create a view filter in the report display, complete the following steps.

##### Step 1: Display View Filter

Select the **View** dropdown menu option on the report grid toolbar. Then select **View Filter** option on the dropdown.

An empty view filter will be displayed on the report.

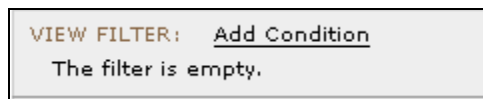


Figure 20, Empty View Filter

##### Step 2: Add Viewing Condition

To add a viewing condition, click on the **Add Condition** link.

The user is prompted to select the element that will be used in the filter. In this example for the Student Date of Birth report, these element options are **Student**, **Student Date of Birth**, and **State of Residence**.



Select the **State of Residence** option from the dropdown box.

The select filter, which uses the same format as that used for report filters, will open.

For this example, select the states that are to be filtered on: Virginia and Tennessee. Then click on the right arrow icon to place these elements in the **Selected:** dialog box. Notice that Texas is not included in the state dialog box because it was not returned in the result set.

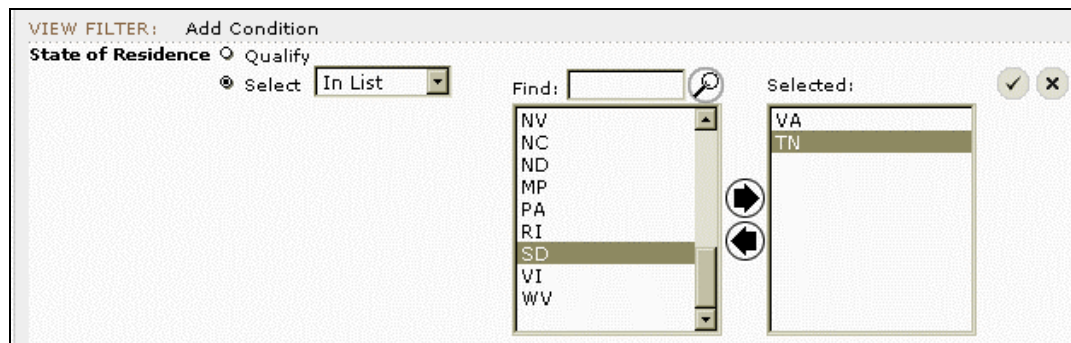


Figure 21, View Filter

Click the check icon  to include the filter on the report.

The report result set will return with the view filter executed. In this example, the report will display with only students that live in Virginia and Tennessee.

Student	Student DOB	State of Residence
JAMES ROBINSON	01/08/1977	TN
GAIL SPARKS	01/08/1977	TN
DAVID CROCKETT	01/08/1977	TN
RANDY ZAGORIN	01/01/1970	VA
NATE BROWN	01/01/1970	VA
PAUL REIGEL	01/01/1970	VA
CLAIRE FOLBRE	01/01/1970	VA
ALLISON WEBSTER	01/01/1970	VA
GEORGE BOBB JR	08/12/1956	VA
JOHN CROTTY	01/08/1977	TN

Figure 22, Report with View Filter

### 4.3 Adding Prompts

Prompts are used to allow the user to select filtering criteria dynamically prior to report execution. Filtering criteria are determined by the users answers to a list of prompt questions before submitting the report for execution. Thus, prompts provide flexibility in the filters that are applied within a report.

Users of the NSLDS II project will have the ability to add prompts to a report when developing a new report. Prompts are accessible in the design mode by navigating to the **Prompts** folder in the **All Objects** tab.

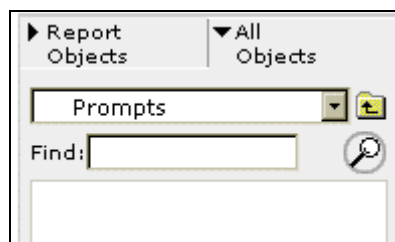


Figure 23, Prompt Folder

To add a prompt to a report, click on the prompt name link in the **Prompt** folder.

The prompt will be added to the report.

## 4.4 Running Reports with Prompts

If reporting prompts have been added to a report, the user will simply answer the prompting questions before the report request is fully submitted.

The following figure shows an example of a report prompt. For this particular example, the user is asked to select a GA from a distinct list of Guaranty Agencies. Only information related to the agencies selected will appear on the report.

Figure 24, Prompt Window

For this example, three Guaranty Agencies will be moved from the **Available:** box to the **Selected:** box using the arrows between these two boxes. When the desired elements appear in the **Selected:** box, click on the **Execute Report** button.

Figure 25, Prompt with Selections

The report adhering to the dynamically created filters available through prompts will be displayed.

Loan Status	Lender	School	Guaranty Agency	Metrics	Outstanding Principal Balance	Outstanding Interest Balance
Defaulted, Unresolved	CHEMICAL BANK C/O GERRI MADALONE	FORDHAM UNIVERSITY	NEW YORK STATE HIGHER EDUCATION SERVICES		\$3,906.00	\$2,794.0
In Military Grace	NBD BANK, TRUSTEE FOR SMS	AMERICAN MUSICAL & DRAMATIC ACADEMY	USA FUNDS, INC.		\$8,915.00	\$197.0
In Repayment	BALLSTON SPA NATIONAL BANK	CLINTON COMMUNITY COLLEGE - SUNY OFFICE OF COMMUNITY COLLEGES	NEW YORK STATE HIGHER EDUCATION SERVICES		\$0.00	\$0.0
	UNION FINANCIAL SERVICES	UNIVERSITY OF NEVADA - LAS VEGAS	USA FUNDS, INC.		\$11,740.00	\$0.0

**Figure 26, Report Results**

## 4.5 Manipulating Reports

The NSLDS II web environment supports an array of report manipulations. This section gives a high level description of key functions that users can use while viewing reports in the NSLDS II project.

### 4.5.1 Drilling

Drilling allows the user to see data at levels other than that of the original grid or graph. The ability to drill allows the user analyze data on a report quickly and easily. Drilling lets the user drill on the entire report or only on part of a report.

### 4.5.2 Page-by

A page-by enables the user to select and display subsets of the report data as separate pages. This feature is most useful on extremely long reports where downward scrolling is necessary to see all of the data.

### 4.5.3 Data Pivoting

Data allows the user to rearrange report columns and rows within a report in order for the data to be viewed from different perspectives. Pivoting data can be done by either right clicking on the row or column or dragging and dropping the row or column to its destination.

#### 4.5.4 Sorting

Sorting allows the user to specify the order in which the data in a report for a particular row or column is presented, in either ascending or descending order. There are two sorting options, quick sorting and sorting using the sort panel.